

216630US-2

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: :
MASAHIRO TAMURA ET AL : ATTN: APPLICATION BRANCH
SERIAL NO: NEW PATENT APPLICATION :
FILED: HEREWITH :
FOR: SHEET-LIKE MEDIUM :
ALIGNMENT APPARATUS :

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER OF PATENTS
WASHINGTON, DC 20231

SIR:

Prior to examination on the merits, please amend the above-identified patent application as follows:

IN THE SPECIFICATION

Please amend the specification as shown in clean form below. A marked-up copy of the changes is attached hereto.

Page 2, lines 6-15, please amend this paragraph as follows:

In Fig. 77 illustrating an example of the prior art sheet treatment apparatus, for example, sheets S1 with an image created thereon by an image forming apparatus (not illustrated) are fed to the sheet processing apparatus, and are led to a pair of ejection rollers 3 as an ejecting means comprising a lower roller 3a and an upper roller 3b through the ejection sensor for detecting the passage of this sheet. Then sheets are ejected in the direction of ejection "a" (orthogonal to the axial direction of the lower roller 3a within the

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common tangential plane between a lower roller 3a and an upper roller 3b) on a direct extension of the aforementioned feed direction.

Page 2, line 26 through page 3, line 4, please amend this paragraph as follows:

Depending on the ejection speed, the intermediate position of the sheets S1 ejected from the ejection roller 3 to the tray 3 may be bent in the process of ejection while the rear ends of the sheets S1 are still gripped by the ejection roller 3 as shown in Fig. 77, and the sheets S1 may be fed out with the leading edge thereof kept in contact with the loaded sheets S" which are already loaded on the tray 12.

Page 3, lines 21-26, please amend this paragraph as follows:

To solve this problem of misalignment resulting from the loaded sheet being moved by the leading edge of the ejected paper according to the prior art, a retaining roller 121' as a retaining means is provided at a central position along the width of the sheet between the ejection roller 3 and the upper surface of the tray 12 in such a way that it can be rotated and drive, as shown in Fig. 78.

Page 4, lines 12-21, please amend this paragraph as follows:

When the retaining roller 121' is rotating in the arrow-marked direction as shown in Fig. 78, the retaining roller 121' has also a function of returning the sheet to the side of the end fence 131. The roller in this case is referred to as a returning roller. As shown in Fig. 79, the returning roller 121' is kept in a light contact with the top surface on the tray 12 and is driven in such a way as to move the contact surface toward the upstream side in the direction

of ejection a, so the sheets fed onto the tray 12 whose trailing edges are gripped by the returning roller 121' are returned opposite to the direction of ejection "a" and are pressed against the end fence 131.

Page 6, line 16 through page 7, line 4, please amend this paragraph as follows:

Further, when this roller is used as a returning roller, back curling (downward curling) occurs to the sheet ejected from the ejection roller. If a great number of curled sheets are loaded on the tray, there will be a gradually decrease in the angle of inclination of the top surface of the loaded paper. In other words, assume that angle of inclination of the upper surface on the tray 12 is α degrees, as shown in Fig. 79. Then when a great number of back curled sheets are loaded, the angle of inclination of the top surface of the loaded paper will be β degrees ($\alpha > \beta$). Under this condition, sheets S1 dropped on the tray 12 cannot easily slide along the inclination on the loaded surface. The trailing edges of some of the sheets having fallen on the top surface of the loaded paper cannot be caught by the returning roller 121'. As a result, longitudinal misalignment will be caused on the downstream side in the direction of ejection "a" as shown in Fig. 79, and these sheets (sheets S') will be protruded from others.

Page 7, lines 5-18, please amend this paragraph as follows:

In other words, as shown in Fig. 80, the sheets S1 ejected from the ejection roller 3 sequentially drop with the positions of the trailing edges thereof changed along the outer periphery of the lower roller 3a, as shown by the two-dot chain line, and are brought in contact with the returning roller 121' during this time. Then they are further stacked on the sheets S' loaded on the tray 12 along the outer periphery for the returning roller 121'. If many

back-curved sheets are loaded and there is a gradual inclination on the loaded surface, the sheet trailing edge in contact in the range from the top of the returning roller 121' to the side of it is flapped in the direction of ejection "a" by the driving force of the returning roller 121'. Without being caught by the returning roller 121', these sheets are stacked on the loaded sheets S", with the result that protruded sheets S' occur. Such a phenomenon occurs intermittently. As shown in Fig. 79, the protruded sheets S' occur partially, resulting in misalignment.

REMARKS

Favorable consideration of this application as presently amended is respectfully requested.

Claims 1-30 are presently active in this case.

The present amendment to the specification is to correct informalities, including the numeral designation of "Figs. 100, 101, 102 and 103" to --Figs. 77, 78, 79 and 80--, respectively.

Accordingly, examination on the merits of Claims 1-30 is believed to be in order, and an early and favorable action is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



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A handwritten signature in black ink, appearing to read 'Eckhard H. Kuesters', written over the printed name.

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Marked-Up CopySerial No: NEW APPLICATION

Amendment Filed on:

November 30, 2001IN THE SPECIFICATION

Page 2, lines 6-15, please amend this paragraph as follows:

In Fig. [100] 77 illustrating an example of the prior art sheet treatment apparatus, for example, sheets S1 with an image created thereon by an image forming apparatus (not illustrated) are fed to the sheet processing apparatus, and are led to a pair of ejection rollers 3 as an ejecting means comprising a lower roller 3a and [a] an upper roller 3b through the ejection sensor for detecting the passage of this sheet. Then sheets are ejected in the direction of ejection "a" (orthogonal to the axial direction of the lower roller 3a within the common tangential plane between a lower roller 3a and [a] an upper roller 3b) on a direct extension of the aforementioned feed direction.

Page 2, line 26 through page 3, line 4, please amend this paragraph as follows:

Depending on the ejection speed, the intermediate position of the sheets S1 ejected from the ejection roller 3 to the tray 3 may be bent in the process of ejection while the rear ends of the sheets S1 are still gripped by the ejection roller 3 as shown in Fig. [100] 77, and the sheets S1 may be fed out with the leading edge thereof kept in contact with the loaded sheets S" which are already loaded on the tray 12.

Page 3, lines 21-26, please amend this paragraph as follows:

To solve this problem of misalignment resulting from the loaded sheet being moved by the leading edge of the ejected paper according to the prior art, a retaining roller 121' as a retaining means is provided at a central position along the width of the sheet between the ejection roller 3 and the upper surface of the tray 12 in such a way that it can be rotated and drive, as shown in Fig. [101] 78.

Page 4, lines 12-21, please amend this paragraph as follows:

When the retaining roller 121' is rotating in the arrow-marked direction as shown in Fig. [101] 78, the retaining roller 121' has also a function of returning the sheet to the side of the end fence 131. The roller in this case is referred to as a returning roller. As shown in Fig. [102] 79, the returning roller 121' is kept in a light contact with the top surface on the tray 12 and is driven in such a way as to move the contact surface toward the upstream side in the direction of ejection a, so the sheets fed onto the tray 12 whose trailing edges are gripped by the returning roller 121' are returned opposite to the direction of ejection "a" and are pressed against the end fence 131.

Page 6, line 16 through page 7, line 4, please amend this paragraph as follows:

Further, when this roller is used as a returning roller, back curling (downward curling) occurs to the sheet ejected from the ejection roller. If a great number of curled sheets are loaded on the tray, there will be a gradually decrease in the angle of inclination of the top surface of the loaded paper. In other words, assume that angle of inclination of the upper surface on the tray 12 is α degrees, as shown in Fig. [102] 79. Then when a

great number of back curled sheets are loaded, the angle of inclination of the top surface of the loaded paper will be β degrees ($\alpha > \beta$). Under this condition, sheets S1 dropped on the tray 12 cannot easily slide along the inclination on the loaded surface. The trailing edges of some of the sheets having fallen on the top surface of the loaded paper cannot be caught by the returning roller 121'. As a result, longitudinal misalignment will be caused on the downstream side in the direction of ejection "a" as shown in Fig. [102] 79, and these sheets (sheets S') will be protruded from others.

Page 7, lines 5-18, please amend this paragraph as follows:

In other words, as shown in Fig. [103] 80, the sheets S1 ejected from the ejection roller 3 sequentially drop with the positions of the trailing edges thereof changed along the outer periphery of the lower roller 3a, as shown by the two-dot chain line, and are brought in contact with the returning roller 121' during this time. Then they are further stacked on the sheets S' loaded on the tray 12 along the outer periphery for the returning roller 121'. If many back-curved sheets are loaded and there is a gradual inclination on the loaded surface, the sheet trailing edge in contact in the range from the top of the returning roller 121' to the side of it is flapped in the direction of ejection "a" by the driving force of the returning roller 121'. Without being caught by the returning roller 121', these sheets are stacked on the loaded sheets S", with the result that protruded sheets S' occur. Such a phenomenon occurs intermittently. As shown in Fig. [102] 79, the protruded sheets S' occur partially, resulting in misalignment.